of walking in Virginia and the Carolinas. To obtain the relative abundance of species in the area involved[38] he counted the number of times each species was mentioned in the notes, and multiplied the figures for *Pinus Taeda* and *P. palustris* by 5, and for the other conifers by 3 before calculating the percentages. The figures for smaller trees were divided by 2 or by 10, for shrubs by 100, and for herbs by 500. The results were tabulated and are rather interesting. Some estimates of annual increment of the whole vegetation, of the amount of mineral matter taken each year from the soil, and of the amount of water transpired are based upon these analyses.—GEO. D. FULLER.

Forest sanitation.—In a recent bulletin MEINECKE[39] emphasizes the importance and also the difficulties of giving phytopathology a proper place in forest regulation. He elaborates methods of investigation and application, exemplifying by an actual study of *Abies concolor*. Forest sanitation is the keynote of the remedial measures proposed, a system of forest regulation which will give proper attention to the removal or destruction of diseased individuals from the community.

It is also interesting to note that WEIR,[40] after discussing the character and nature of the injuries due to various mistletoes, outlines methods of forest sanitation consisting of directing cutting so as to effect the removal of diseased communities and individuals. Such methods of forest sanitation he believes will become increasingly practicable with the increasing demand for cutting privileges in the National Forest Reserves.—GEO. D. FULLER.

Michigan sand dunes.—In a recent bulletin SANFORD[41] estimates that sand dunes stretch for over 400 miles along shore lines of the state of Michigan and cover not less than 550 square miles of its territory. In the southern peninsula, with the removal of the forests, many of the dunes are becoming active again and now constitute a menace to valuable fruit growing lands. The importance of maintaining a forest cover is pointed out, and the various recognized methods of dune reclamation are described. The failure of certain efforts to control dune movement by planting is shown to be due to a discontinuance of work before the final cover of permanent forest growth becomes established. Such plantings made by the government at Manistee in 1902 resulted in a temporary cover, which a small amount of subsequent planting

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[38] HARPER, R. M., A quantitative, volumetric, and dynamic study of the vegetation of the *Pinus Taeda* belt of Virginia and the Carolinas. Bull. Torr. Bot. Club **44**:39–57. 1917.

[39] MEINECKE, E. P., Forest pathology in forest regulation. U.S. Dept. Agric. Bull. 275. pp. 63. 1916.

[40] WEIR, J. R., Some suggestions on the control of mistletoe in the national forests of the northwest. Forest Quart. **14**:567–577. 1916.

[41] SANFORD, F. H., Michigan shifting sands: their control and better utilization. Mich. Agric. Coll. Exp. Sta. Bull. 79. pp. 31. *figs.* 22. 1916.